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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Dr. Peter J. Sims

Serial No: 09/020,393 Group Art Unit: Not yet assigned

Filed: February 9, 1998 Examiner: Not yet assigned

For: *COMPOSITIONS AND METHODS TO INHIBIT FORMATION OF THE C5B-9-COMPLEX OF COMPLEMENT*Assistant Commissioner for Patents
Washington, D.C. 20231RECEIVED
U.S. PATENT AND TRADEMARK OFFICE
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INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicant submits an Information Disclosure Statement, including fourteen (14) pages of Form PTO-1449 and copies of the documents cited therein.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any additional fees to Deposit Account No. 01-2507.

United States Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
3,625,214	05/18/70	Higuchi	128/260
4,244,946	01/13/81	Rivier, et al.	424/177
4,305,872	12/15/81	Johnston, et al.	260/112.5 R
4,316,891	02/23/82	Guillemin, et al.	424/177
4,447,415	05/08/84	Rock	424/101
4,629,784	12/16/86	Stammer	530/328
4,695,460	09/22/87	Holme	424/101
4,789,734	12/06/88	Pierschbacher	530/395
4,792,525	12/20/88	Ruoslahti, et al.	435/240.243

U.S.S.N. 09/020,393

Filed: February 9, 1998

INFORMATION DISCLOSURE STATEMENT

4,906,474	03/06/90	Langer, et al.	424/428
4,916,219	04/10/90	Linhardt, et al.	536/21
4,925,673	05/15/90	Steiner, et al.	424/455
5,136,916	08/11/92	Shibukawa	84/627
5,573,940	11/12/96	Sims, et al.	435/240.2
5,612,895	03/18/97	Balaji, et al.	364/496
5,624,837	04/29/97	Fodor, et al.	435/325

Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Country/Region</u>
0,351,313	07/11/89	EPA
0,394,035	04/19/90	EPA
WO 93/01286	01-21-1993	PCT
WO 97/17987	05-22-1997	PCT

Publications

AGRAWAL, et al., "Oligodeoxynucleoside phosphoramidates and phosphorothioates as inhibitors of human immunodeficiency virus," *Proc. Natl. Acad. Sci. USA* 85(19):7079-7083 (1988).

ALLEN, et al., "The Cambridge Crystallographic Data Centre: Computer-Based Search, Retrieval, Analysis and Display of Information," *Acta Cryst. B* 35:2331-2339 (1979).

AMIES, "The Use of Topically Formed Calcium Alginate as a Depot Substance in Active Immunisation" *J. Path. Bact.* 77:435-442 (1959).

ANDO, et al., "The Secretory Release Reaction Initiated by Complement Proteins C5b-9 Occurs Without Platelet Aggregation Through Glycoprotein II-b-IIIa," *Blood* 73(2):462-467 (1989).

ANDO, et al., "Complement Proteins C5b-9 Initiate Secretion of Platelet Storage Granules without Increased Binding of Fibrinogen or von Willebrand Factor to Newly Expressed Cell Surface GPIIb-IIIa," *J. Biol. Chem.* 263(24):11907-11914 (1988).

ARCHAKOV, et al., *Vestn. Ross. Akad. Med. Nauk.* 1:60-63 (1996).

ASKEW, et al., "Molecular recognition with Convergent Functional Groups" *J. Am. Chem. Soc.*, 111:1082-1090 (1989)

INFORMATION DISCLOSURE STATEMENT

BEVERS, et al., al. "Defective Ca²⁺- Induced microvesiculation and deficient Expression of Procoagulant Activity in Erythrocytes From a patient with a Bleeding Disorder" A Study of the Red Blood Cells of Scott Syndrome" *Blood* 79(2):380-388 (1992).

BLAAS, et al., "Paroxysmal Nocturnal Hemoglobinuria *J. Immunology* 140:3045-3051 (1988).

BODIAN, et al., al., "Mutational Analysis of the Active Site and Antibody Epitopes of the Complement-inhibitory Glycoprotein CD59," *J. Exp. Med.* 185(3):507-516 (1997).

BRAGA, et al. "A Monoclonal Antibody to the Galactose-Specific Adhesin Abrogates the resistance of *E. histolytica* to Lysis by Human Complement C5b-9" XIV International Complement Workshop Cambridge, U.K. (1991).

BRINT, "Upperbound procedures for the identification of similar three-dimensional chemical structures," et al., *J. Comput.-Aided Mol. Design* 2:311-310 (1988).

BURGESS, et al., "Possible Dissociation of the Heparin-binding and Mitogenic Activities of Heparin-binding (Acidic Fibroblast) Growth Factor-1 from Its Receptor-bind Activities by Site-directed Mutagenesis of a Single Lysine Residue," *J. Cell Biology* 111:2129-2138 (1990).

CHANG, et al. "Identity of a Peptide Domain of Human C9 That Is Bound by the Cell-surface Complement Inhibitor, CD59," *J. Biol. Chem.* 269(42):26424-26430 (1994).

CLACKSON, et al., "Making antibody fragments using phage display libraries," *Nature* 352:624-688 (1991).

COOPER, et al., "A novel approach to molecular similarity," *J. Comput.-Aided Mol. Design* 3:253-259 (1989).

CROSS, "Glycolipid Anchoring of Plasma Membrane Proteins" *Annu. Rev. Cell Biol.* 6:1-39 (1990).

DAUGHERTY, et al., "Polymerase chain reaction facilitates the cloning, CDR-grafting, and rapid expression of a murine monoclonal antibody directed against the CD18 component of leukocyte integrins," *Nucl. Acids Res.* 19(9):2471-2476 (1991).

DAVIES, et al., "CD59, An LY-6-Like Protein Expressed in Human Lymphoid Cells, Regulates the Action of the Complement Membrane Attack Complex on Homologous Cells," *J. Exp. Med.* 170(3):637-654 (1989).

INFORMATION DISCLOSURE STATEMENT

DAVIES, et al. "Membrane Defense against Complement Lysis: The Structure and Biological Properties of CD59," *Immunol. Res.* 12(3):258-275 (1993).

DUPUIS, et al., "Mutations in the Putative Lipid-Interaction Domain of Complement C9 Result in Defective Secretion of the Functional Protein," *Mol. Immunol.* 30(1):95-100 (1993).

FLETCHER, et al., "Sequence-specific ¹H-NMR assignments and folding topology of human CD59," *Protein Sci.* 2:2015-2027 (1993).

FLETCHER, et al., "Structure of soluble, glycosylated form of the human complement regulatory protein CD59," *Structure* 2:185-199 (1994).

GERBER, et al., "Phosphatidylinositol Glycan (PI-G) Anchored Membrane Proteins," *J. Biol. Chem.* 267(17):12168-12173 (1992).

GHOSHAL, et al., "Computer Aids in Drug Design - Highlights" *Pol. J. Pharmacol.* 48(4): 359-377 (1996).

GILBERT, et al. "Platelet-derived Microparticles Express High Affinity Receptors for Factor VIII" *J. Biol. Chem.* 266(8): 1-8 (1991).

GREGORIADIS, "Liposomes," in Drug Carriers in Biology and Medicine, Chap. 14. pp. 287-341 (Academic Press, 1979).

GROUX, et al., "A 19-kDa Human Erythrocyte Molecule H19 is Involved in Rosettes, Present on Nucleated Cells, and Required for T Cell Activation," *J. Immunology* 142(9):3013-3020 (1989).

HAHN, et al. "Overlapping But Nonidentical Binding Sites on CD2 for CD58 and a second Ligand CD59" *Science* 256: 1805-1807 (1992).

HAMILTON, et al. "The Terminal Complement Proteins C5b-9 Augment Binding of High Density Lipoprotein and its Apolipoproteins A-I and A-II to Human Endothelial Cells" *J. Clin. Invest.* 88: 1833-1840 (1991).

HAMILTON, et al., "Complement Proteins C5b-9 Induce Vesiculation of the Endothelial Plasma Membrane and Expose Catalytic Surface for Assembly of the Prothrombinase Enzyme Complex" *J. Bio. Chem.*, 265:3809-3814 (1990)

HAMILTON, et al., "Regulatory Control of the Terminal Proteins at the Surface of Human Endothelial Cells: Neutralization of a C5b-9 Inhibitor by Antibody to CD59," *Blood* 76(12): 2572-2577 (1990).

HANSCH, et al., "Release of C8 Binding Protein (C8bp) From the Cell Membrane by Phosphatidylinositol-Specific Phospholipsae C," *Blood* 72(3):1089-1092 (1988).

HANSCH, et al. "Paroxysmal Nocturnal Hemoglobinuria Type III" *J. Clin. Invest.* 80:7-12 (1987).

HARADA, et al., "Monoclonal antibody G6K12 specific for membrane-associated differentiation marker of human stratified squamous epithelia and squamous cell carcinoma," *J. Oral Pathol. Med.* (Denmark), 22(4):145-152 (1993).

HATANAKA, et al., "The functions of the ninth component of human complement are sustained by disulfide bonds with different susceptibilities to reduction," *Biochim. Biophys. Acta Protein Struct. Mol. Enzymol.* 1209(1):117-122 (1994).

HATTORI, et al. "Complement Proteins C5b-9 Induce Secretion of High Molecular Weight Multimers of Endothelial von Willebrand Factor and Translocation of Granule Membrane Protein GMP-140 to the Cell Surface," *J. Biol. Chem.* 264(15):9053-9060 (1989).

HATTORI, et al., "Stimulated Secretion of Endothelial von Willebrand Factor Is Accompanied by Rapid Redistribution to the Cell Surface of the Intracellular Granule Membrane Protein GMP-140" *J. Bio. Chem.*, 264(14):7768-7771 (1989)

HOGAN, et al., *Manipulating Mouse Embryo: a Laboratory Manual* Cold Spring Harbor Laboratory (1986)

HOLGUIN, et al., "Isolation and Characterization of a Membrane Protein from Normal Human Erythrocytes That Inhibits Reactive Lysis of the Erythrocytes of Paroxysmal Nocturnal Hemoglobinuria," *J. Clin. Invest.* 84(1):7-17 (1989).

HOULE, et al., "Evidence for restriction of the ability of complement to lyse homologous Erythrocytes," *J. Immunol.* 133:1444-1452 (1984).

HOULE, et al., "Restriction of Cell Lysis by Homologous Complement: II. Protection of Erythrocytes Against Lysis by Newly Activated Complement," *Blood* 71(2):287-292 (1988).

HUANG et al., "Development of a Common 3D Pharmacophore for Delta-Opioid Recognition From Peptides and Non-Peptides Using a Novel Computer Program" *J. Comput. Aided Mol. Des.* 11(1):21-78 (1997).

HÜSLER, et al., "Chimeras of Human Complement C9 Reveal the Site Recognized by Complement Regulatory Protein CD59," *J. Biol. Chem.* 270(8):3483-3486 (1995).

INFORMATION DISCLOSURE STATEMENT

HUSLER, et al., "Role of a Disulfide-bonded Peptide Loop within Human Complement C9 in the species-Selectivity of Complement Inhibitor CD59", *Biochem.*, 35(10):3263-3269 (1996)

INAI, et al., "Immunohistochemical detection of an enamel protein-related epitope in rat bone at an early stage of osteogenesis," *Histochemistry* (Germany), 99(5):335-362 (1993).

ITAKURA, et al., "Synthesis and Use of Synthetic Oligonucleotides," in *Ann. Rev. Biochem.* 53:323-356 (1984).

KABAT, et al., Sequences of Proteins of Immunological Interest, 4th Ed. (U.S. Dept. Health and Human Services, Bethesda, MD, 1987)

KIEFFER, et al., "Three-Dimensional Solution Structure of the Extracellular Region of the Complement Regulatory Protein CD59, a New Cell-Surface Protein Domain Related to Snake Venom Neurotoxins," *Biochemistry* 33:4471-4482 (1994).

KINOSHITA, et al., "Defective Glycosyl Phosphatidylinositol Anchor Synthesis and Paroxysmal Nocturnal Hemoglobinuria," *Adv. Immunol.* 60:57-103 (1995).

KLEINBERG, et al., "New Approaches and Technologies in Drug Design and Discovery" *Am. J. Health Syst. Pharm.* 52(12):1323-1336 (1995).

KOOYMAN, et al. "In Vivo Transfer of GPI-Linked Complement Restriction Factors from Erythrocytes to the Endothelium" *Science* 269:89-92 (1995).

KORTY, et al. "CD59 Functions as a Signal-Transducing Molecule for Human T Cell Activation" *J. Immunol.* 146:4092-4098 (1991)

KUBINYI, "Strategies and Recent Technologies in Drug Discovery" *Pharmazie* 50(10):647-662 (1995).

LAZAR, et al., "Transforming Growth Factor :Mutation of Aspartic Acid 47 and Leucine 48 Results in Different Biological Activities," *Molecular and Cellular Biology* 8(3):1247-1252 (1988).

LEWIS, et al., "Automated site-directed drug design: the concept of spacer skeletons for primary structure generation," *Proc. R. Soc. Lond.*, 236(1283):125-140 (1989)

LEWIS, et al., "Automated site-directed drug design: the formation of molecular templates in primary structure generation," *Proc. R. Soc. Lond.*, 236(1283):141-162 (1989)

INFORMATION DISCLOSURE STATEMENT

LI, et al., "A computer Screening Approach to Immunoglobulin Superfamily Structures and Interactions: Discovery of Small Non-Peptidic CD4 Inhibitors and Novel Immunotherapeutics" *Proc. Natl. Acad. Sci. USA* 94(1):73-78 (1997).

LIN, et al. "A family showing inheritance of the Inab phenotype" *Transfusion* 28: 427-429 (1988).

LUBLIN, et al., "Decay-Accelerating Factor and Membrane Cofactor Protein," *Current Topics Microbiol. Immunol.* 153:123-145 (1989).

LYBRAND, "Ligand-Protein Docking and Rational Drug Design" *Curr. Opin. Struct. Biol.* 5(2):224-228 (1995).

MARTIN, et al., "Induction of expression of cell-surface homologous restriction factor upon anti-CD3 stimulation of human peripheral lymphocytes," *Proc. Natl. Acad. Sci. USA* 85:213-217 (1988).

MCKINLAY, et al., "Rational Design of Antiviral Agents," *Annual Review of Pharmacology and Toxicology*, 29:111-122 (1989)

MEDOF, et al., "Inhibition of Complement Activation on the Surface of Cells After Incorporation of Decay-Accelerating Factor (DAF) Into Their Membranes," *J. Exp. Med.* 160(5):1558-1578 (1984).

MERRIFIELD, "Solid-Phase Peptide Synthesis. I. The Synthesis of a Tetrapeptide," *J. Am. Chem. Soc.* 85:2149-2154 (1964).

MULDER, et al., "Characterization of Two Human Monoclonal Antibodies Reactive with HLA-B12 and HLA-B60, Respectively, Raised by *in vitro* Secondary Immunization of Peripheral Blood Lymphocytes," *Hum. Immunol.* 36(3):186-192 (1993).

NAKANO, et al., "Determination of the Active Site of CD59 with Synthetic Peptides," *Mol. Immunol.* 32(4):241-247 (1995).

NARANG, et al., "Chemical Synthesis of Deoxyoligonucleotides by the Modified Triester Method," in *Methods Enzymol.* 65:610-620 (1980).

NELSON, et al., at pp. 227, 271 and 285, respectively, in *Burger's Medicinal Chemistry*, Part 1, the Basis of Medicinal Chemistry, 4th Edition, (Wolff, ed.) (John Wiley & Sons, NY, 1980).

INFORMATION DISCLOSURE STATEMENT

NICHOLSON-WELLER, et al., "Surface Membrane Expression by Human Blood Leukocytes and Platelets of Decay-Accelerating Factors, a Regulatory Protein of the Complement System," *Blood* 65(5): 1237-1244 (1985).

NINOMIYA, et al., "The Human Complement Regulatory Protein CD59 Binds to the α -Chain of C8 and to the "b" Domain of C9," *J. Biol. Chem.* 267:13675-13680 (1992).

NINOMIYA, et al. "Contribution of the N-Linked Carbohydrate of Erythrocyte Antigen CD59 to ITS Complement -inhibitory Activity" *J. Biol. Chem.* 267(12): 8404-8410 (1992).

NOSE, et al. "Tissue distribution of HRF20, a novel factor preventing the membrane attack of homologous complement, and its predominant expression on endothelial cells *in vivo*" *Immunology* 70:145-149 (1990).

OFFENSPERGER, et al., "In Vivo inhibition of duck hepatitis B virus replication and gene expression by phosphorothioate modified antisense oligodeoxynucleotides," *EMBO J.* 12(3):1257-1262 (1993).

OKADA, et al. "Monoclonal Antibodies Capable of Causing Hemolysis of Neuraminidase-treated Human Erythrocytes by Homologous Complement" *J. Immunol.* 143: 2262-2266 (1989).

OKADA, et al., "20 Kda Homologous Restriction Factor of Complement Resembles T Cell Activating Protein," *Biochem. Biophys. Res. Comm.* 162(3):1553-1559 (1989).

OKADA, et al., "A novel membrane glycoprotein capable of inhibiting membrane attack by homologous complement," *International Immunology* 1(2):205-208 (1989).

PANGBURN, et al., "Deficiency of an erythrocyte membrane protein with complement regulatory activity in paroxysmal nocturnal hemoglobinuria," *Proc. Natl. Acad. Sci. USA* 80:5430-5434 (1983).

PERRY & DAVIES, QSAR: Quantitative Structure-Activity Relationships in Drug Design pp. 189-193 (Alan R. Liss, inc. 1989)

PETRANKA, et al., "Structure-Function Relationship of the Complement Regulatory Protein, CD59," *Blood Cells Mol. Dis.* 22(3):281-296 (1996).

PHILBRICK, et al. "The CD59 antigen is a structural homologue of murine Ly-6 antigens but lacks interferon inducibility, *Eur. J. Immunol.* 20: 87-92 (1990).

INFORMATION DISCLOSURE STATEMENT

PLATT, et al. "Transplantation of discordant xenografts: a review of progress" *Immunology Today* 11(12): 450-457 (1990).

RIPKA, "Computers Picture the Perfect Drug," *New Scientist*, 54-57 (June 16, 1988)

ROLLINS, et al., "The Complement-Inhibitory Activity of CD59 Resides in its Capacity to Block Incorporation of C9 Into Membrane C5b-9," *J. Immunol.* 144(9):3478-3483 (1990).

ROLLINS, et al., "Inhibition of Homologous Complement by CD59 is Mediated by a Species-Selective Recognition Conferred Through Binding to C8 Within C5b-8 or C9 Within C5b-9," *J. Immunol.* 146(7):2345-2351 (1991).

ROTIVINEN, et al., "Computer-Aided Drug Design," *Acta Pharmaceutica Fennica*, 97:159-166 (1988)

SARIN, et al., "Inhibition of acquired immunodeficiency syndrome virus by oligodeoxynucleoside methylphosphonates," *Proc. Natl. Acad. Sci. USA* 85(20):7448-7794 (1989).

SCHALLER, et al., "Identification of the Disulfide Bonds of the Human Complement Component C9 and Comparison with the Other Terminal Components of the Membrane Attack Complex," *J. Protein Chem.* 13:472-473 (1994).

SCHÖNERMARK, et al., "The C8-binding protein of human erythrocytes: interaction with the components of the complement-attack phase," *Immunology* 63(4):585-590 (1988)

SCHÖNERMARK, et al., "Homologous Species Restriction in Lysis of Human Erythrocytes: A Membrane-Derived Protein with C8-Binding Capacity Functions as an Inhibitor," *J. Immunol.* 136(5):1772-1776 (1986).

SHATTIL, et al., "Changes in the Platelet Membrane Glycoprotein IIb-IIIa Complex during Platelet Activation," *J. Biol. Chem.* 260():11107-11112 (1985).

SHAW, et al., "Modified deoxyoligonucleotides stable to exonuclease degradation in serum," *Nucleic Acids Res.* 19(4):747-750 (1991).

SHIN, et al., "Membrane Factors Responsible for Homologous Species Restriction of Complement-Mediated Lysis: Evidence for a Factor Other Than DAF Operating at the Stage of C8 and C9," *J. Immunology* 136(5):1777-1782 (1986).

SHIN, et al., "Cytotoxic Action and Other Metabolic Consequences of Terminal Complement Proteins," *Prog. Allergy* 40:44-81 (1988).

SIMS, "Interaction of Human Platelets with the Complement System", Platelet Immunobiology, Chapter 18, 354-383 (1990)

SIMS, "Complement Protein C9 Labeled with Flourescein Isothiocyanate Can Be Used to Monitor C9 Polymerization and Formation of the Cytolytic Membrane Lesion" *Biochemistry* 23: 3248-3260 (1984).

SIMS , et al. "The response of human platelets to activated components of the complement system" *Immuno!ogy Today* 12(9): 338-342 (1991).

SIMS, et al., "Assembly of the Platelet Prothrombinase Complex Is Linked to Vesiculation of the Platelet Plasma Membrane," *J. Biol. Chem.* 264(29):17049-17057 (1989).

SIMS, et al., "Complement Proteins C5b-9 Cause Release of Membrane Vesicles for the Platelet Surface That Are Enriched in the Membrane Receptor for Coagulation Factor VA and Express Prothrombinase Activity," *J. Biol. Chem.* 263(34):18205-18212 (1988).

SIMS, et al., "Regulatory Control of Complement on Blood Platelets," *J. Biol. Chem.* 264(32):19228-19235 (1989).

SIMS, et al., "Repolarization of the Membrane Potential of Blood Platelets After Complement Damage: Evidence for a Ca⁺⁺-Dependant Exocytotic Elimination of C5b-9 Pores," *Blood* 68(2):556-561 (1986).

SIMS, "Plasma Proteins; Complement" in Transfusion Medicine, pp 1582-1591, (Mintz, P, ed.), W.B. Saunders, Philadelphia (1994-1995).

SLANETZ, et al. "Heterodimeric, disulfide-linked α/β T cell receptors in solution" *Eur. J. Immunol.* 21: 179-183 (1991).

SPATOLA, *Chemistry and Biochemistry of Amino Acids, Peptides, and Proteins* Vol. 7, pp. 257-357, (Weistein, B, Ed.), Marcel Dekker, New York (1983).

STÄUBER, et al., "Rapid generation of monoclonal antibody-secreting hybridomas against African horse sickness virus by *in vitro* immunization and the fusion/cloning technique," *J. Immunol. Methods* (Netherlands), 161(2):157-168 (1993).

STEFANOVA, et al., "Characterization of a Broadly Expressed Human Leucocyte Surface Antigen MEM-43 Anchored in Membrane Through Phosphatidylinositol," *Molecular Immunology* 26(2):153-161 (1989).

INFORMATION DISCLOSURE STATEMENT

STEWART, et al., "Orientation of Human CD59 Upon Insertion into the Phospholip Bilayer. A Fluorescent Resonance Energy Transfer Study" *Biophysical Journal* 59:48 (1991). (abstract)

SUGITA, et al. "Isolation from Human Erythrocytes of a New Membrane Protein Which Inhibits the Formation of Complement Transmembrane Channels," *J. Biochem* 104: 633-637 (1988).

SZELKE, et al., *In Peptides: Structure and Function, Proceedings of the Eighth American Peptide Symposium*, (Hruby, et al., eds.) pp. 579-582, (Pierce Chemical Co., Rockford, Ill. (1983)).

SZOSTAK, "In Vitro genetics," *TIBS* 19:89-93 (1992).

TAO, et al., "Studies of Aglycosylated Chimeric Mouse-Human IgC," *J. Immunology* 43(8):2595-2601 (1989).

TAKEBE, et al. "SR α Promoter: an efficient and Veratile mammalian cDNA Expression System Composed of the simian Virus 40 Early Promoter and the R-U5 Segment of Human T-Cell Leukemia Virus Type 1 Long Terminal Repeat" *Mol. Cell. Biol* 8(1): 466-472 (1988).

TAYLOR, et al., "The Word Wide Web as a graphical user interface to program macros for molecular graphics, molecular modeling, and structure-based drug design" *J. Mol. Graph.* 14(5):291-296 (1996).

TELEN, "Identification of Human Erythrocyte Blood Group Antigens on Decay-Accelerating Factor (DAF) and an Erythrocyte Phenotype Negative for DAF" *J. Exp. Med* 167: 1993-1998 (1988).

TERSTAPPEN, et al. "Expression of the DAF (CD55) and CD59 antigens during normal hematopoietic cell differentiation" *Journal of Leukocyte Biology* 52:652-660 (1992).

VAN DE MEER, et al., "Complement Proteins C5b-9 Induce Transbilayer Migration of Membrane Phospholipids," *Biophys. J.* 56:935-946 (1989)

VENKATESWARAN, et al., "Production of Anti-Fibroblast Growth Factor Receptor Monoclonal Antibodies by *In Vitro* Immunization," *Hybridoma* 11(6):729-739 (1992).

WEINER, et al., "A New Force Field for Molecular Mechanical Simulation of Nucleic Acids and Proteins," *J. Am. Chem. Soc.* 106(3):765-784 (1984).

WENDOLOSKI, et al., "Biophysical Tools for Structure-Based Drug Design" *Pharmacol. Ther.* 60(2):169-183 (1993).

INFORMATION DISCLOSURE STATEMENT

WIEDMER, et al. "Complement Proteins C5b-9 Stimulate Procoagulant Activity through Platelet Prothrombinase" *Blood* 68(4): 875-880 (1986).

WIEDMER, et al., "Complement C5b-9-stimulated Platelet Secretion Is Associated with a Ca²⁺-initiated Activation of Cellular Protein Kinases," *J. Biol. Chem.* 262(28):13674-13681 (1987).

WIEDMER, et al., "On the Mechanism by Which Complement Proteins C5b-9 Increase Platelet Prothrombinase Activity," *J. Biol. Chem.* 261(31):14587-14592 (1986).

WIEDMER, et al. "Participation of Protein Kinases in Complement C5b-9- Induced Shedding of Platelet Plasma Membrane Vesicles" *Blood* 78(11):1-7 (1991).

WIEDMER, et al, "Role of Calcium and Calpain in Complement-Induced Vesiculation of the Platelet Plasma Membrane and in the Exposure of the Platelet Factor VA Receptor," *Biochemistry* 29:623-632 (1990).

WIEDMER, et al., "Effect of Complement Proteins C5b-9 on Blood Platelets," *J. Biol. Chem.* 260(13):8014-8019 (1984).

WIEDMER, et al., "Cyanine Dye Fluorescence Used to Measure Membrane Potential Changes due to the Assembly of Complement Proteins C5b-9," *J. Membr. Biol.* 84:249-258 (1985).

WURZNER, et al. "Inhibition of Terminal Complement Complex Formation and Cell Lysis by Monoclonal Antibodies" *Complement Inflamm.* 8: 328-340 (1991).

YAMASHINA, et al. "Inherited Complete Deficiency of 20-Kilodalton Homologous Restriction Factor (CD59) as a Cause of Paroxysmal Nocturnal Hemoglobinuria" *The New England Journal of Medicine* 323(17):1184-1189 (1990).

YU, et al., "Mapping the Regions of the Complement Inhibitor CD59 Responsible for Its Species Selective Activity," *Biochemistry* 36:9423-9428 (1997).

YU, et al., "Mapping the Active Site of CD59," *J. Exp. Med.* 185(4):745-753 (1997).

ZALMAN, et al., "Deficiency of the Homologous Restriction Factor in Paroxysmal Nocturnal Hemoglobinuria," *J. Exp. Med.* 165:572-577 (1987).

U.S.S.N: 09/020,393

Filed: February 9, 1998

INFORMATION DISCLOSURE STATEMENT

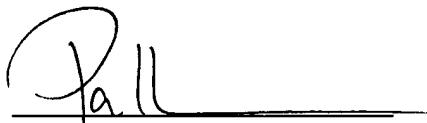
ZALMAN, et al. "Isolation of a human erythrocyte membrane protein capable of inhibiting expression of homologous complement transmembrane channels," *Proc. Natl. Acad. Sci. USA* 83: 6975-6979 (1986).

ZHAO, et al., "Identity of the Residues Responsible for the Species-restricted Complement Inhibitory Function of Human CD59," *J. Biol. Chemistry* 273(17):10665-10671 (1998).

Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicant invites the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,



Patrea L. Pabst
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Dated: December 30, 1998

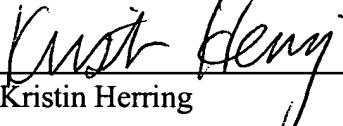
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U.S.S:N. 09/020,393
Filed: February 9, 1998
INFORMATION DISCLOSURE STATEMENT

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this Information Disclosure Statement, along with any paper referred to as being attached or enclosed, is being deposited with the United States Postal Service on the date shown below with sufficient postage as first-class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: December 30, 1998


Kristin Herring